

SECTION

4

**Quality of care in the
Medicare program**

Chart 4-1. Most in-hospital and 30-day postdischarge mortality rates improved from 2006 to 2009

| Condition or procedure | Risk-adjusted rate per 100 eligible discharges, 2006 | Risk-adjusted rate per 100 eligible discharges, 2009 | Directional change in rate, 2006–2009 |
|---------------------------------------|--|--|---|
| In-hospital mortality | | | |
| Esophageal resection | 8.29 | 6.14 | No difference |
| Pancreatic resection | 6.18 | 4.36 | No difference |
| Abdominal aortic aneurysm repair | 5.17 | 5.27 | No difference |
| Acute myocardial infarction | 9.36 | 7.43 | Better |
| Congestive heart failure | 4.24 | 3.27 | Better |
| Stroke | 11.19 | 8.94 | Better |
| Hip fracture | 3.50 | 2.89 | Better |
| Pneumonia | 4.72 | 3.69 | Better |
| 30-day postdischarge mortality | | | |
| Esophageal resection | 10.66 | 7.98 | No difference |
| Pancreatic resection | 7.74 | 6.05 | No difference |
| Abdominal aortic aneurysm repair | 6.53 | 7.09 | No difference |
| Acute myocardial infarction | 15.75 | 13.08 | Better |
| Congestive heart failure | 10.62 | 8.76 | Better |
| Stroke | 23.31 | 19.77 | Better |
| Hip fracture | 9.50 | 8.04 | Better |
| Pneumonia | 10.32 | 8.35 | Better |

Note: Rates are calculated based on the discharges eligible to be counted in each measure. Rates do not include deaths in non-inpatient prospective payment system hospitals or Medicare Advantage plans. “Better” indicates that the risk-adjusted rate decreased by a statistically significant amount from 2006 to 2009 using a $p \leq 0.01$ criterion. “No difference” indicates that the change in the rate was not statistically significant from 2006 to 2009 using a $p \leq 0.01$ criterion.

Source: MedPAC analysis of CMS Medicare Provider Analysis and Review data using Agency for Healthcare Research and Quality Inpatient Quality Indicators Version 4.1b (with modifications for 30-day mortality rate calculations).

- Trends in risk-adjusted in-hospital mortality rates are used to assess changes in the quality of care provided to Medicare beneficiaries during inpatient stays for certain medical conditions and surgical procedures. The 30-day postdischarge mortality rates reflect the quality-of-care transitions for beneficiaries in the critical period during and after a hospital discharge.
- From 2006 to 2009, in-hospital and 30-day postdischarge mortality rates improved by a statistically significant amount for all five medical conditions measured: acute myocardial infarction, congestive heart failure, stroke, hip fracture, and pneumonia.
- Both types of mortality rates for the three inpatient surgical procedures measured—esophageal resection, pancreatic resection, and repair of abdominal aortic aneurysm—were stable from 2006 to 2009; there was no statistically significant change in those rates from 2006 to 2009.

Chart 4-2. Hospital inpatient patient safety indicators improved or were stable from 2006 to 2009

| Patient safety indicator | Risk-adjusted rate per 100 eligible discharges, 2006 | Risk-adjusted rate per 100 eligible discharges, 2009 | Directional change in rate, 2006–2009 |
|--|--|--|---------------------------------------|
| Death among surgical inpatients with treatable serious complications | 10.44 | 9.85 | No difference |
| Iatrogenic pneumothorax | 0.10 | 0.07 | Better |
| Postoperative respiratory failure | 1.94 | 1.88 | No difference |
| Postoperative PE or DVT | 0.93 | 0.50 | Better |
| Postoperative wound dehiscence | 0.29 | 0.28 | No difference |
| Accidental puncture or laceration | 0.34 | 0.23 | Better |

Note: PE (pulmonary embolism), DVT (deep vein thrombosis). “Better” indicates that the risk-adjusted rate decreased by a statistically significant amount from 2006 to 2009 using a $p \leq 0.01$ criterion. “No difference” indicates that the change in the rate from 2006 to 2009 was not statistically significant using a $p \leq 0.01$ criterion.

Source: MedPAC analysis of CMS Medicare Provider Analysis and Review data using Agency for Healthcare Research and Quality Patient Safety Indicators Version 4.1b.

- The observed rates for these patient safety indicators provide an indication of the frequency of injuries to patients from their medical care or complications from clinical procedures that often can be avoided with appropriate medical care. The rates are calculated using software developed by the Agency for Healthcare Research and Quality (AHRQ) and Medicare inpatient hospital discharge data. The software is periodically revised by AHRQ, so rates for a given year and trends over time that are calculated with different versions of the software are not directly comparable.
- With an updated version of the AHRQ software (compared with the 2010 data book), the observed rate improved between 2006 and 2009 for three of the six indicators analyzed: iatrogenic pneumothorax, postoperative pulmonary embolism (a blood clot in one or more arteries of the lung) or deep vein thrombosis (a blood clot in a deep vein, usually the leg), and accidental puncture or laceration. The rates for the other three indicators were stable; that is, there was no statistically significant change in those rates from 2006 to 2009.
- Medicare began requiring all inpatient prospective payment system (IPPS) hospitals to indicate whether a condition was “present on admission” (POA) for inpatient discharges on or after October 1, 2007, with the goal of more accurately identifying conditions that actually are acquired during a hospital stay. The increasingly consistent use of POA indicator codes by IPPS hospitals should enable more reliable analyses of patient safety indicator rates and trends in the future.

Chart 4-3. Most ambulatory care quality indicators improved or were stable from 2007 to 2009

| Indicators | Number of indicators | | | Total |
|--------------|----------------------|--------|----------|-------|
| | Improved | Stable | Worsened | |
| All | 19 | 16 | 3 | 38 |
| Anemia | 2 | 2 | 0 | 4 |
| CAD | 2 | 2 | 0 | 4 |
| Cancer | 2 | 4 | 1 | 7 |
| CHF | 5 | 3 | 0 | 8 |
| COPD | 1 | 0 | 1 | 2 |
| Depression | 0 | 1 | 0 | 1 |
| Diabetes | 6 | 1 | 0 | 7 |
| Hypertension | 0 | 0 | 1 | 1 |
| Stroke | 1 | 3 | 0 | 4 |

Note: CAD (coronary artery disease), CHF (congestive heart failure), COPD (chronic obstructive pulmonary disease).

Source: MedPAC analysis of Medicare Ambulatory Care Indicators for the Elderly with data from the Medicare 5 percent Standard Analytic Files.

- The Medicare Ambulatory Care Indicators for the Elderly track the provision of necessary care and rates of potentially avoidable hospitalizations for beneficiaries age 65 or older with selected medical conditions.
- Of 38 indicators, 19 improved and 16 did not change by a statistically significant amount. This finding indicates that for most measures, rates of beneficiaries with selected conditions receiving clinically indicated services and averting potentially avoidable hospitalizations were the same or better in 2009 compared with 2007. Additionally, for diabetes and congestive heart failure patients, reductions in potentially avoidable hospitalizations occurred concurrently with improvements in process-of-care measures for those conditions.
- Our analysis found declines in three of the indicators. The percentage of beneficiaries diagnosed with iron-deficiency anemia for whom a follow-up colonoscopy should be performed (to check for the possibility of colon cancer) has remained below 30 percent since we started examining this indicator in 2002–2003. There also were small but statistically significant declines from 2007 to 2009 in rates of potentially preventable hospitalizations for beneficiaries diagnosed with chronic obstructive pulmonary disease and those diagnosed with hypertension.
- Three of the six measures of potentially avoidable hospitalizations and emergency department visits improved, one remained stable, and two worsened (discussed above). The improved measures were the percentage of beneficiaries with diabetes who were admitted to a hospital for serious short-term diabetes-related complications (such as hyperglycemia), the percentage of beneficiaries with diabetes admitted for long-term diabetes-related complications (such as lower extremity amputation), and the percentage of beneficiaries with congestive heart failure who had hospitalizations related to that disease. Rates were stable between 2007 and 2009 for the percentage of beneficiaries diagnosed with unstable angina who had multiple emergency department visits during the year.

Chart 4-4. Risk-adjusted SNF quality measures show mixed results since 2000

| Measure | 2000 | 2004 | 2006 | 2008 | Percentage point change, 2000–2008 |
|--|-------|-------|-------|-------|------------------------------------|
| Percent discharged to community within 100 days of SNF admission | 33.3% | 34.4% | 35.3% | 36.0% | 2.7% |
| Percent rehospitalized for any of five conditions within 100 days of SNF admission | 13.7 | 13.8 | 13.8 | 13.9 | 0.2 |

Note: SNF (skilled nursing facility). Increases in rates of discharge to community indicate improved quality. The five conditions include congestive heart failure, respiratory infection, urinary tract infection, sepsis, and electrolyte imbalance. Increases in rehospitalization for the five conditions indicate worsening quality. Rates are calculated for all facilities with 25 or more stays.

Source: MedPAC analysis of freestanding SNF cost reports.

- The 2008 risk-adjusted rate at which Medicare-covered skilled nursing facility (SNF) patients were discharged to the community was 36 percent. The rate improved since 2000, indicating improved quality.
- The 2008 risk-adjusted rate at which Medicare-covered SNF patients were rehospitalized for potentially avoidable conditions was 13.9 percent, almost the same as in 2000 and indicating almost no change in quality.
- Across facilities, the risk-adjusted measures varied considerably (not shown). Facilities with the highest rates of discharge to the community (the top 10th percentile) were three times more likely to discharge Medicare patients to the community compared with facilities with the lowest rates (the lowest 10th percentile). Risk-adjusted rates of rehospitalization varied less but still more than twofold.

Chart 4-5. Share of home health patients with positive outcomes has grown, but increases have leveled off

| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|------|------|------|------|------|------|------|
| Functional/pain measures (higher is better) | | | | | | | |
| Improvements in: | | | | | | | |
| Walking | 36% | 37% | 39% | 41% | 44% | 45% | 47% |
| Getting out of bed | 50 | 51 | 52 | 53 | 53 | 54 | 54 |
| Bathing | 59 | 61 | 62 | 63 | 64 | 64 | 65 |
| Managing oral medications | 37 | 39 | 40 | 41 | 43 | 43 | 43 |
| Patients have less pain | 59 | 61 | 62 | 63 | 64 | 64 | 64 |
| Adverse event measure (lower is better) | | | | | | | |
| Any hospital admission | 28 | 28 | 28 | 28 | 29 | 29 | 29 |

Source: MedPAC analysis of CMS Home Health Compare data.

- Medicare publishes risk-adjusted home health quality measures that track changes in the functional abilities and rates of adverse events for patients who receive home health care.
- Since 2004, the functional measures—such as improvements in walking and bathing, and pain control—have shown small but steady improvement, although the trend has leveled off in recent years. (For these measures, increasing values indicate improvement.)
- The adverse event rates—including hospitalizations and emergency room use—have mostly remained unchanged over this period.

Chart 4-6. Dialysis quality of care: Some measures show progress, others need improvement

| Outcome measure | 2003 | 2007 | 2008 | 2009 |
|---|------|------|------|------|
| Percent of in-center hemodialysis patients: | | | | |
| Receiving adequate dialysis | 94% | 94% | 95% | 95% |
| Anemia measures | | | | |
| Mean hemoglobin 10–12 g/dL | 48 | 49 | 57 | 62 |
| Mean hemoglobin ≥ 13 g/dL* | 15 | 14 | 9 | 7 |
| Mean hemoglobin < 10 g/dL* | 6 | 6 | 6 | 6 |
| Dialyzed with an AV fistula | 33 | 47 | 50 | 53 |
| Percent of peritoneal dialysis patients: | | | | |
| Receiving adequate dialysis | N/A | 89 | 88 | 89 |
| Anemia measures | | | | |
| Mean hemoglobin 10–12 g/dL | 45 | 48 | 52 | 57 |
| Mean hemoglobin ≥ 13 g/dL* | 21 | 18 | 14 | 12 |
| Mean hemoglobin < 10 g/dL* | 7 | 7 | 9 | 10 |
| Percent of prevalent dialysis patients wait-listed for a kidney | 15 | 17 | 17 | N/A |
| Renal transplant rate per 100 dialysis patient years | 4.8 | 4.4 | 4.2 | N/A |
| Annual mortality rate per 100 patient years* | 21.4 | 19.3 | 18.6 | N/A |
| Total admissions per patient year* | 2.0 | 1.9 | 1.9 | N/A |
| Hospital days per patient year | 13.7 | 12.9 | 12.8 | N/A |

Note: g/dL (grams per deciliter of blood), AV (arteriovenous), N/A (not available). Data on dialysis adequacy, use of fistulas, and anemia management represent percent of patients meeting CMS's clinical performance measures. United States Renal Data System adjusts data by age, gender, race, and primary diagnosis of end-stage renal disease.

*Lower values suggest higher quality.

Source: Compiled by MedPAC from the Elab Project Report, Fistula First, and the United States Renal Data System.

- The quality of dialysis care has improved for some measures. All hemodialysis patients require vascular access—the site on the patient's body where blood is removed and returned during dialysis. Between 2003 and 2009, use of arteriovenous fistulas, considered the best type of vascular access, increased from 33 percent to 53 percent of hemodialysis patients. Between 2003 and 2008, overall adjusted mortality rates decreased but remained high among dialysis patients.
- The quality of dialysis care has remained steady for some measures. Between 2003 and 2009, the proportion of hemodialysis patients receiving adequate dialysis remained high. Overall rates of hospitalization remained steady at about two admissions per dialysis patient per year.
- Other measures suggest that improvements in dialysis quality are still needed. We looked at access to kidney transplantation because it is widely believed that it is the best treatment option for individuals with end-stage renal disease. The proportion of dialysis patients accepted on the kidney transplant waiting list remains low. The falloff in the rate of kidney transplantation is partly due to a decrease in live organ donations during this period.

Chart 4-7. Medicare Advantage quality measures were generally stable between 2009 and 2010

| Measures | HMO averages | | Local PPO averages | |
|---|--------------|-------|--------------------|-------------------|
| | 2009 | 2010 | 2009 | 2010 |
| HEDIS® administrative measures | | | | |
| Breast cancer screening | 67.9 | 69.1 | 65.7 | 66.1 [†] |
| Glaucoma testing | 59.8 | 62.1* | 62.5 | 64.2 |
| Monitoring of patients taking long-term medications | 86.3 | 89.1* | 88.7 | 89.7 |
| At least one primary care doctor visit in the last year | 92.7 | 93.7* | 95.1 | 95.6 [†] |
| Osteoporosis management | 20.7 | 20.7 | 17.2 | 18.1 [†] |
| Rheumatoid arthritis management | 70.4 | 72.3 | 75.2 | 76.9 [†] |
| Tests to confirm chronic obstructive pulmonary disorder | 27.7 | 28.4 | 26.4 | 28.7 |
| HEDIS® hybrid measures | | | | |
| Colorectal cancer screening | 53.0 | 54.7 | a | a |
| Cholesterol screening for patients with heart disease | 88.5 | 88.4 | a | a |
| Controlling blood pressure | 58.5 | 59.7 | a | a |
| Cholesterol screening for patients with diabetes | 86.3 | 87.3 | a | a |
| Eye exam to check for damage from diabetes | 60.8 | 63.5* | a | a |
| Kidney function testing for patients with diabetes | 87.8 | 88.5 | a | a |
| Diabetics with cholesterol under control | 48.6 | 49.9 | a | a |
| Diabetics not controlling blood sugar (lower rate better) | 29.5 | 28.1 | a | a |
| Measures from HOS^b | | | | |
| Osteoporosis testing | 66.7 | 67.4 | 72.5 | 73.8 |
| Monitoring physical activity | 46.9 | 46.9 | 47.0 | 48.1 [†] |
| Improving bladder control | 35.3 | 35.4 | 36.3 | 37.9 [†] |
| Reducing the risk of falling | 57.8 | 58.2 | 54.8 | 54.4 [†] |
| Other measures based on HOS | | | | |
| Improving or maintaining physical health | 66.0 | 66.6 | 66.3 | 67.3 |
| Improving or maintaining mental health | 77.4 | 76.9 | 78.4 | 77.7 |
| Measures from CAHPS® | | | | |
| Annual flu vaccine | 66.4 | 64.3* | 67.2 | 65.3 |
| Pneumonia vaccine | 64.4 | 65.1 | 66.9 | 67.0 |
| Ease of getting needed care and seeing specialists | 83.2 | 83.8 | 83.8 | 84.8* |
| Doctors who communicate well | 89.5 | 89.3 | 89.5 | 89.4 |
| Getting appointments and care quickly | 73.8 | 73.8 | 74.8 | 74.1 |
| Overall rating of health care quality | 84.0 | 83.9 | 84.7 | 84.6 |
| Overall rating of plan | 84.2 | 83.3* | 83.0 | 81.8* |

Note: PPO (preferred provider organization), HEDIS® (Healthcare Effectiveness Data and Information Set, a registered trademark of the National Committee for Quality Assurance), HOS (Health Outcomes Survey), CAHPS® (Consumer Assessment of Healthcare Providers and Systems, a registered trademark of the Agency for Healthcare Research and Quality). Medicare Advantage plan types not included in the data are regional PPOs, private fee-for-service plans, continuing care retirement community plans, and employer-direct plans. Cost-reimbursed HMO plan results are included. HEDIS® administrative measures are calculated by using administrative data such as claims, encounter data, pharmacy data, and certain electronic records; hybrid measures involve sampling medical records to determine a rate.

*Statistically significant difference in performance on this measure for plan type compared with preceding year ($p < 0.05$).

[†]Statistically significant difference in performance in 2010 between HMO and PPO results ($p < 0.05$).

(Chart continued next page)

Chart 4-7. Medicare Advantage quality measures were generally stable between 2009 and 2010 (continued)

^aPPO results not reported for hybrid measures for 2009 because plans were not allowed to use medical record review to determine rates. Because 2010 is the first year in which PPOs are using medical record review, local PPO rates may not be entirely comparable to HMO rates (statistical significance of differences between HMOs and PPOs therefore not determined). For the colorectal cancer screening measure, CMS specifically excludes PPO results in determining star thresholds for plans because of the specification of the measure, which includes a nine-year look-back period to confirm whether a person has received a colonoscopy.

^bResults shown for HEDIS[®] measures taken from HOS (the four measures listed) include scores for plans not reporting other HEDIS[®] data in 2010. Results will therefore differ from those shown in other MedPAC reporting of these scores.

Source: MedPAC analysis of CMS HEDIS public use files for HEDIS measures, and star ratings data for measures based on HOS and for CAHPS measures.

- CMS compiles quality data from several sources to calculate a “star rating” (ranging from one to five stars) for Medicare Advantage (MA) plans. Beginning in 2012, plan ratings under the CMS star system will determine which MA plans are eligible for quality bonuses. These data provide a baseline for determining the effect of having certain measures tied to bonus payments. The performance on such measures can also be compared with plan performance on measures that are not included in the star rating system.
- For the 28 clinical and patient experience measures included in the star ratings, HMO plan performance was generally stable between 2009 and 2010, with 4 measures showing statistically significant improvement and 2 declining. Among local preferred provider organization (PPO) plans, two measures showed improvement in this time period, and one declined.
- As of 2010, PPO plans are reporting results for hybrid measures using medical record review, which they were not allowed to do before 2010. For the hybrid measures, local PPOs are reporting poorer results than HMOs, but this result may be because the medical record-based reporting is new for PPOs. For the nonhybrid measures included in the star rating system, local PPO results are better than HMO results for four measures and worse for two measures.

Web links. Quality of care in the Medicare program

- Chapters 3, 4, and 6 through 9 of the MedPAC March 2011 Report to the Congress include information on the quality of care provided by inpatient hospitals, physicians and other ambulatory care providers, outpatient dialysis facilities, skilled nursing facilities, home health agencies, and inpatient rehabilitation facilities.

http://www.medpac.gov/chapters/Mar11_Ch03.pdf

http://www.medpac.gov/chapters/Mar11_Ch04.pdf

http://www.medpac.gov/chapters/Mar11_Ch06.pdf

http://www.medpac.gov/chapters/Mar11_Ch07.pdf

http://www.medpac.gov/chapters/Mar11_Ch08.pdf

http://www.medpac.gov/chapters/Mar11_Ch09.pdf

- Chapter 12 of the MedPAC March 2011 Report to the Congress includes information on the quality of care in Medicare Advantage plans.

http://www.medpac.gov/chapters/Mar11_Ch12.pdf

- Chapter 13 of the MedPAC March 2011 Report to the Congress includes information on performance metrics for Medicare Part D plans (prescription drug plans and Medicare Advantage–Prescription Drug plans).

http://www.medpac.gov/chapters/Mar11_Ch13.pdf

- Chapter 6 of the MedPAC March 2010 Report to the Congress includes a set of recommendations on comparing the quality of care between Medicare fee-for-service and Medicare Advantage and among Medicare Advantage plans.

http://www.medpac.gov/chapters/Mar10_Ch06.pdf

- Chapter 4 of the MedPAC June 2007 Report to the Congress discusses policy options to improve the quality of home health services, and Chapter 8 of the same report provides information on the quality of care provided by skilled nursing facilities.

http://www.medpac.gov/chapters/Jun07_Ch04.pdf

http://www.medpac.gov/chapters/Jun07_Ch08.pdf

- Chapter 2 of the MedPAC June 2006 Report to the Congress discusses care coordination for Medicare beneficiaries and its implications for quality of care.

http://www.medpac.gov/publications/congressional_reports/Jun06_Ch02.pdf

- Chapter 4 of the MedPAC March 2005 Report to the Congress outlines strategies to improve care through pay-for-performance incentives and information technology.

http://www.medpac.gov/publications/congressional_reports/Mar05_Ch04.pdf

- The CMS website provides information on several of the Medicare quality and value-based purchasing initiatives.

<http://www.cms.gov/QualityInitiativesGenInfo/>

- Medicare provides public comparative information on selected quality measures for hospital, nursing facility, home health agency, and dialysis facilities on its consumer website.

Hospital Compare: <http://www.hospitalcompare.hhs.gov/hospital-search.aspx>

Nursing Home Compare: <http://www.medicare.gov/NHCompare/Home.asp>

Home Health Compare: <http://www.medicare.gov/HomeHealthCompare/search.aspx>

Dialysis Facility Compare: <http://www.medicare.gov/Dialysis/Home.asp>

- CMS makes available downloadable databases of the quality measures and other information underlying the four provider comparison databases cited above.

<http://www.medicare.gov/Download/DownloadDB.asp>

- Medicare Advantage plan quality measures are available through a Medicare consumer website (the Medicare Plan Finder) that makes plan-to-plan comparisons within a specified geographic area, including comparisons with Medicare fee-for-service results on certain measures.

<http://www.medicare.gov/MPPF/home.asp>

- CMS makes available a downloadable database of the Medicare Advantage plan quality measures underlying the Medicare Plan Finder and the star ratings of plans.

<http://www.medicare.gov/Download/DownloadDB.asp> (select “Plans—Quality Data” from the drop-down menu)

- Current and past editions of the National Committee for Quality Assurance (NCQA) publication *The State of Health Care Quality* are available from the NCQA website.

<http://www.ncqa.org/tabid/836/Default.aspx>